

IN THE CLAIMS:

1. (Currently Amended) A black hexavalent chromium-free plating treatment method which is designed so that the corrosion resistance of a surface of a metal is improved, ~~comprising the steps of~~ the preparation method consisting of:

plating the surface of the metal part as a base with zinc in a zinc plating treatment step;

activating a surface of the zinc-plated coating in a treatment solution in a dilute nitric acid activation treatment step;

rinsing the activated metal part to remove nitric acid components;

subsequently forming a black coating on the rinsed metal part in an inorganic salt solution containing trivalent chromium and iron components as main ingredients in a black chromate treatment step;

rerinsing the black coated metal part;

then subjecting the rerinsed metal part to a finish treatment by forming a transparent conversion coating on the rerinsed metal part in a solution of inorganic salt and organic acid containing trivalent chromium and silica as main ingredients in a finish treatment step; and

drying the finished metal part in a drying step.

2. (Currently Amended) A black hexavalent chromium-free plating treatment method which is designed so that the corrosion resistance of a surface metal of a metal part is improved ~~comprising the steps of~~ the method consisting of:

plating the surface of the metal part as a base with zinc in a zinc plating treatment step;

activating a surface of the zinc-plated coating in a treatment solution in a dilute nitric acid activation treatment step;

then rinsing the activated metal part to remove nitric acid components;

forming a black regulation coating on the rinsed metal part in solution of inorganic salt and organic acid containing trivalent chromium and silica as main ingredients in a conversion treatment step which is arranged next to the rinsing step;

rinsing the coated metal part;

subsequently forming a black coating on the rinsed coated metal part in an inorganic salt solution containing trivalent chromium and iron components as main ingredients in a black chromate treatment step;

rerinsing the black coated metal part;

subjecting the rerinsed metal part to a finish treatment in a finish treatment step by forming a transparent conversion coating on the rerinsed metal part in a solution of inorganic salt and organic acid which contains trivalent chromium and silica as main ingredients and is less concentrated than the solution used in the foregoing conversion treatment step; and

drying the finished metal part in a drying step.

3. (Currently Amended) The black hexavalent chromium-free plating treatment system according to claim 1 or 2 wherein the finish treatment step ~~comprises~~ further includes an initial finish treatment step in which a transparent conversion coating is formed in a solution of inorganic salt and organic acid which contains trivalent chromium and silica as main ingredients and a final finish treatment step in which after rinsing following the initial finish treatment, the rinsed metal part is immersed in any one of a overcoat treatment solution containing silica and cobalt as main ingredients and a water-soluble anti-corrosive solution.

4. (Currently Amended) A method of treating a zinc surface to improve corrosion resistance and provide a black color, the method ~~comprising the steps~~ consisting of:

activating the zinc surface by immersion in a nitric acid solution;

treating the zinc surface with an inorganic salt solution having trivalent chromium and iron components forming a black chromate coating; and

treating the black chromate surface with an inorganic salt and organic acid solution having trivalent chromium and silica to form a transparent chromate coating layer thereon.

5. (Currently Amended) The method of treating a zinc surface in Claim 4 further ~~comprising~~ including the step of removing the nitric acid solution after activation and before treating with an inorganic salt solution having trivalent chromium and iron components.

6. (Currently Amended) The method of treating a zinc surface in Claim 5 further ~~comprising~~ including the step of rinsing the black chromate coating with water before treating the black chromate surface.

7. (Currently Amended) A method of treating a zinc surface to improve corrosion resistance and provide black color, the method ~~comprising the steps~~ consisting of:

activating the zinc surface by immersion in a nitric acid solution;

treating the zinc surface with an inorganic salt and organic acid solution having trivalent chromium and silica forming a first chromate coating;

treating the chromate surface with an inorganic salt solution having trivalent chromium and iron components forming a black chromate coating; and

treating the black chromate surface with an inorganic salt and organic acid solution having trivalent chromium and silica to form a second chromate coating, wherein the second chromate coating is transparent.